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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of

Applicant : Saied Bozorgui-Nesbat )

Serial No. : 10/006,356 )

Filed : December 10, 2001 )

Confirmation No. 1657 )

For: METHOD AND APPARATUS FOR )  
ALPHANUMERIC DATA ENTRY )  
USING A KEYPAD )

Group Art Unit 2643

Examiner: George Eng

U.S. Patent and Trademark Office

Customer No. 26694

Attorney Docket: 40146-182899

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July 28, 2004

**APPEAL BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an Appeal Brief to the Board of Patent Appeals and Interferences from the decision in the Office Action of May 4, 2004. Appellants timely filed a Notice of Appeal and a Request for an Extension of Time on June 24, 2004. Appellants now present this Appeal Brief pursuant to 37 C.F.R. § 1.192

**RELATED APPEALS AND INTERFERENCES**

No appeal or interference is known to Appellant's legal representative for Assignee which would directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**STATUS OF CLAIMS**

The application was filed with claims 1-28.

Claims 11, 21, 23-25, and 27 were amended by the January 22, 2004 Amendment and Reply.

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Claims 1-28 are rejected.

Claims 1-28 are appealed and set form in the Appendix to this Brief.

### **STATUS OF AMENDMENTS**

An Amendment After Final is being concurrently filed solely to correct typographical errors.

### **SUMMARY OF THE INVENTION**

Briefly, in accordance with the present invention, a keypad for entering letters includes an array of keys, with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of letters in a typical body of written work. The alphabetical system comprises at least one most-frequently-occurring letter that is entered by more than one activation of the same key and at least one less-frequently-occurring letter that is entered by activation of at least two different keys in sequence.

In accordance with some of the more detailed features of the present invention, the letters are assigned to each key in accordance with position elements of a position array, which include a central position, and a plurality of peripheral positions that point to an adjacent key within the array of keys. The most-frequently-occurring letters are assigned to the central positions of the keys and less-frequently-occurring letters are assigned to the peripheral positions. A most-frequently-occurring letter is entered by a key sequence that requires the activation of a correspondingly assigned key twice. A less-frequently-occurring letter is entered by a two-key sequence that requires first activating the key assigned to the less-frequently-occurring letter and then activating the key to which the position element of the less-frequently-occurring letter points to.

According to some of the other more detailed features of the present invention, one or more non-letter symbols or characters are assigned to each key in accordance with the position elements of the position array. A non-letter symbol or character is entered by a two-key sequence that is not held for letter entry. Similar to letter entry, the two-key sequence requires first activating the key assigned to the non-letter symbol or character and then activating the key to which the position element of the non-letter symbol or

character points to. If a peripheral position points to no adjacent key, a wrap-around extension points to a non-adjacent key.

### **ISSUES**

The issues on appeal are as follows:

**whether** claims 1-21 are properly rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement;

**whether** claims 1, 4-6, 11-14, 16, and 19 are properly rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,231,252 to Kitamura (hereinafter Kitamura);

**whether** claims 25-26 and 28 are properly rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 4,008,793 to Terracina (hereinafter Terracina);

**whether** claims 2-3, 17-18, and 20-21 are properly rejected as being unpatentable over Kitamura in view of U.S. Patent 6,518,957 to Lehtinen et al (hereinafter Lehtinen);

**whether** claims 7-8 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura in view of U.S. Patent 5,339,358 to Danish et al. (hereinafter Danish);

**whether** claim 9 is properly rejected as being unpatentable under 35 U.S.C. 103(a) over Kitamura in view of Terracina;

**whether** claim 15 is properly rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura in view of U.S. Patent 5,818,437 to Grover et al. (hereinafter Grover);

**whether** claims 22-24 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Grover; and

**whether** claim 27 is properly rejected under 35 U.S.C. under 103(a) as being unpatentable over Terracina.

### **GROUPING OF CLAIMS**

The claims are grouped as follows: claims 1-18; 19-22; and 22-28.

### **ARGUMENT**

#### **I. Claims 1 -21 are enabling and therefore patentable under 35 U.S.C. § 112.**

In the Final Office Action of May 4, 2004, the Examiner states that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to make or use the invention. Essentially, the Examiner argues that the specification fails to disclose assigning letters of alphabet based on frequency of occurrence as claimed because of a minor discrepancy in Figure 2 of the Specification. Figure 2 discloses an exemplary English frequency table in Background section, where the Applicant discusses prior art, not the claimed invention. Referring to Figure 2, the Examiner points out that according to the disclosed table, letter D is more frequently occurring than letter H. According to the claimed invention, more frequently occurring letters should be entered by activation of the same key, and less frequently used letters should be entered by activation of different keys. With respect to letters D and H, however, the Specification describes entry of letters D and H as if the order of letters H and D in the table is reversed. In other words, D is shown in the table of Figure 2 as a more frequently occurring letter than H, yet the specification describes D being entered by activation of different keys and H being entered by activation of the same key. Under Examiner's reasoning, the Specification for the entire claimed invention would have been enabling, if letter H replaces D and letter D replaces letter H in the table of Figure 2. Except with respect to entry of letters H and D, the Examiner has not raised objected to the manner in which the Specification describes the entry of the other 24 letters of English alphabet. Based upon the discrepancy associate with the positions of letters D and H in a prior art table, the Examiner concludes that the entire Specification, including the Detailed Description section, does not enable the claimed invention, even when the Examiner appears to agree that the Specification correctly describes entry of the remaining letters of English alphabet.

The standard for determining whether the specification meets the enablement requirement is whether one of skill in the art can make or use the invention without undue experimentation. *In re Wands*, 858 F.3d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). It is respectfully submitted that, throughout, the specification is replete with the word "exemplary embodiment." *See, e.g.*, brief description of FIG. 3, FIG. 4, and FIG. 5, on page 5 of the specification. Thus, one of ordinary skill in the art would clearly realize that the described embodiments are examples of the embodiments of the claimed

invention. For the same reason, it would be recognized that the frequency table shown in Figure 2 is merely an exemplary table that may be used in the operation of the claimed invention. In fact, another exemplary frequency table generally accepted by the body of research is included in, Mayzner, M.S. and M.E. Tresselt, Tables of single-letter and digram frequency counts for various word-length and letter-position combinations. *Psychonomic Monograph Supplements*, 1965. 1(2): p. 13-32.

| Letter | % Freq. |
|--------|---------|
| E      | 10.8    |
| T      | 8.0     |
| A      | 6.6     |
| H      | 6.3     |
| O      | 5.4     |
| S      | 4.9     |
| N      | 4.9     |
| R      | 4.8     |
| I      | 4.2     |
| L      | 3.6     |
| D      | 3.5     |
| U      | 2.5     |
| W      | 2.3     |
| M      | 2.0     |
| C      | 1.9     |
| G      | 1.8     |
| Y      | 1.7     |
| F      | 1.5     |
| B      | 1.3     |
| P      | 1.2     |
| K      | 0.9     |
| V      | 0.8     |
| J      | 0.1     |
| X      | 0.1     |
| Q      | 0.1     |
| Z      | 0.1     |

As can be seen, the specification described the claimed invention consistently with this table. A summary of the letter frequencies of different bodies of text in English can be found in [http://deafandblind.com/word\\_frequency.htm](http://deafandblind.com/word_frequency.htm) or in <http://www.askoxford.com/asktheexperts/faq/aboutwords/frequency>. These sites show different frequency tables that are consistent with the embodiment described in the Specification. Thus, the fact remains that at least with respect to many letters, the Specification clearly describes key pad data entry where a more-frequently occurring letter is produced when the same key is pressed twice, and a less-frequently occurring letter is produced when two different keys are pressed in succession.

Moreover, neither the claims nor the specification limit the invention to the English language. As the specification makes clear in page 8, lines 21-22, “[e]ach letter is a component of an alphabetical system that is represented by letters of any language, arranged in order fixed by custom.” (Emphasis added) Thus, one of ordinary skill would readily recognize that the present invention in no way is dependent on any given table or any particular frequency table of symbols in the manner described and claimed.

It is respectfully submitted that starting on page 9 and ending in page 14, the specification fully describes the invention with reference to Figures 3-8. The specification has devoted 5 pages of specification and 5 Figures to provide detail on how to make the claimed keypad, but also how to use it. Figures 3-6 and corresponding description show, step by step, how an exemplary keypad according to the present invention is made. Figure 7 shows a flow chart for using the claimed keypad entry arrangement.

Because position of letters H and D are reversed in the table of Figure 2, the Action states the entire specification does not enable the claimed invention. Except for letters D and H, the Action has not identified any other one of the 26 English letters where the described entry thereof is inconsistent with what is shown in the table of Figure 2. It is therefore safe to assume that the Specification provides enabling disclosure with respect to every letter except H and D. For this reason alone the claimed invention is enabled. Also, it is important to note that Figure 2 is described in the background, not in the detailed description of the invention. In other words, the table shown in Figure 2 is prior art.

As stated above, this table is one example of many other tables that illustrate frequency of occurrence of alphabetical letters. The claims need only enable the part of the specification that speaks to the invention, not to the prior art. The Action has not referred to any reason as to why a minor discrepancy in a Figure that is described as background information would lead one of ordinary skill in the art down a path that the claimed invention could not be made or used. The applicant submits that Figure 2 has no bearing on whether the invention meets the enablement requirement. The specification clearly provides enough adequate description to enable one of ordinary skill to make and use the invention. The existence of illustrative figure, provided merely as an example and discussed in the prior art/background section of the specification cannot suddenly make an enabling description no longer enabling. For the foregoing reasons, the Final Action fails to make a "prima facie" case for non-enablement under 35 USC 112, first paragraph.

**II. Claim 1, 4-6, 11-14, and 19 are not anticipated by Kitamura under 35 U.S.C. 102(e)**

Claims 1, 4-6, 11-14, 16 and 19 stand rejected under 35 USC 102(e) as being anticipated by US Patent No. 6,231,252 issued to Kitamura. In support of the anticipation rejection, on page 3 of the Final Office Action the Examiner cites Figure 7 of Kitamura, noting that "while Kitamura also teaches the single key pressing operation can be defined as an operation in which the same key is pressed twice (col. 6 lines 57-63). This is enough to met [sic] unduly broad claim."

It is well settled that a prior art anticipates a claim only when each and every one of the claimed limitations are found in a single reference. Because the Examiner has not met this requirement by identifying how each and every one of the claimed limitations are disclosed in Kitamura, the applicant respectfully traverses all anticipation claim rejections that are based on this reference.

For example, claim 1 requires "an array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work." Although Kitamura discloses a keypad having an array of keys being assigned letters of alphabet, unlike the claimed invention,

each key in the disclosed array is not assigned based on the frequency of occurrence of alphabets. Thus, Kitamura fails to disclose this expressly recited claim limitation.

The Examiner, on page 10 of the Final Office Action, states that "Kitamura clearly teaches to classify twenty six English letters in different groups based on the frequency of occurrence in a typical body of written work (col. 9 line 45 through col. 10 line 6)" Applicants respectfully disagree as the cited section makes no reference to letter frequencies.

In fact, Kitamura's Figure 7 is not arranged based on letter frequencies, but by letters belonging to a group of vowels or consonants. For example, group 10 in Fig 7 is based on the arrangement of the vowels based on their alphabetical order not their appearance frequency or statistical data. Similarly, group 30 in Fig 7 of Kitamura is primarily based on their alphabetical order of these pairs of consonants on each key in group 30. In contrast, the claimed invention requires the keys in a key array be assigned letters bases on occurrence frequency, e.g. the most-frequency-occurring letter and a less-frequently-occurring letter. The key array shown in Figure 7 of Kitamura does not teach or suggest the claimed arrangement that requires each key in the array be assigned letters based occurrence frequency.

Claim 11 requires "an array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work." Also, independent, claim 19 explicitly requires "determining the frequency of occurrences of letters..." and "assigning letters to keys based on frequency of occurrence of the letter"

Kitamura's Figure 7 and the part of the specification cited in the Action (col. 9 line 30 through col. 10 line 65) require the separation of vowels and consonants and their separate grouping and treatment. Kitamura's Figure 7 and the part of the specification cited by the examiner (col. 9 line 30 through col. 10 line 65) require that each vowel key occupy no other letter. None of cited sections in the Office Action disclose an array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work.

Moreover, claim 1 requires the alphabetical system to comprise "at least one most-frequently-occurring letter that is entered by more than one key activation



associated with the same key and at least one less-frequently-occurring letter that is entered by at least one key activation associated with each of at least two different keys.” Claims 11 and 19 also contain limitations relating to “the most-frequently-occurring letter” and a “less-frequently-occurring letter.”

On pages 3 and 10 of the Final Office Action, the Examiner refers to Kitamura col.6. This section of Kitamura, specifically col. 6 lines 50-67, distinctly describes a *time-dependent* key pressing action required by Kitamura to distinguish between a rapid succession of pressing of the same consonant key and that of pressing it again after a prescribed amount of time elapses. Contrary to required limitations of claim 1, 11, and 19, Kitamura does not teach suggest the entry of the “most-frequently-occurring letter” by two key activation of the same key and the entry of the “less-frequently-occurring letter” by key activation of at least two different keys. Unlike the claimed invention, Kitamura’s assignment is primary based on the distinction and grouping of letters based on them being vowels or consonants. Some of the keys in Kitamura’s Figure have only one letter assignment, and that letter is sometimes most frequent, sometimes less frequent. Thus, there is no teaching or suggestion regarding two-key activation entry of a “most frequently occurring letter” by the same key, and sequenced activation of two different keys for the “less-frequently-occurring letter,” as required by the claimed invention.

The Final Office Action states (p. 10, final paragraph)

"Kitamura clearly teaches to enter a high appearance letter, i.e. T, by a single key pressing operation (col 9 lines 59-63) and the single key pressing operation can also be defined as an operation in which the same key is pressed again after the prescribed period of time being elapsed from [sic] the timing when the same key is pressed (col. 6 lines 57-63), and to enter a low appearance letter, i.e. G, by pressing two different key [sic] (col. 7 lines 9-10)."

Once again, the cited sections make no mention of more-frequently and less-frequently occurring letters. Because Kitamura fails to disclose each and every one of the claimed limitations, the claimed invention is not anticipated under 35 102(b).

For the reasons stated above, Kitamura is clearly distinguishable from the broadest rejected independent claims 1, 11 and 19, because it does not teach or suggest a number of claimed limitations. Therefore, it is respectfully submitted that all other

dependent claims, which incorporate intervening claim limitations, are distinguishable in view of Kitamura, alone or in combination with other references has also been overcome.

**II. Claims 25-26 and 28 are patentable and not anticipated by Terracina under 35 USC 102(b).**

Claims 25-26 and 28 stand rejected under 35 USC 102(b) as being anticipated by Terracina.

Claim 25 requires "an array of keys having at least one key assigned to a data symbol in accordance with a position array that has defined position elements, including at least one data symbol is entered by key activation of a key and a non-adjacent key, wherein at least one data symbol is entered by key activation sequence of a key and a non-adjacent key that is pointed to by a peripheral position of a the key." The Examiner's position as that all the elements of claim 25 are disclosed in Figures 3a-3b, 4a, and col. 1 lines 34-61 of Terracina. Applicants respectfully disagree.

Terracina discloses a typewriter using an alphabet in which the letters are obtained from a single type of sign. The machine is capable of being equipped with teletransmission and telereception devices and means for use by the blind. As such, Terracina's keyboard is completely combinational and does not work if sequence of keys is used. Specifically, in the section cited by the Examiner, it is stated twice that simultaneous lowering of keys is required for the printing of letters. (Terracina, col 1, lines 44-45; 58-59). The claimed invention requires the use sequence of keys, or touching and un-touching at different areas (sliding) actions. Thus, it is believed that the claim requirement, for activation of a *sequence* of keys clearly distinguishes the independent claim 25, and its dependent claims 26 and 28, from Terracina.

The Examiner argues on page 11 of the final Office Action that "the claimed language fail to clearly define what is the key activation sequence. Thus Terracina is enough the rejected the broad claim language [sic]." Applicants respectfully disagree, as it clear from the claim what a key activation sequence is. Key sequences are discussed throughout the specification. *See, e.g.*, page 6, first and third paragraphs; page 8, second paragraph; page 9, first and second paragraph, etc. Further, a key activation sequence is

explained, for example, on page 11, in the second and third paragraphs, as well as in other parts of the specification.

**III. Claims 2-3, 17-18, and 20-21 are patentable under 35 USC 103(a) over Kitamura in light of Lehtinen.**

The Examiner states that

"Kitamura differs from the claimed invention in not specifically teaching that each key is a soft key presented to a user on a display device in accordance with a program executed on a device processor so that key activation requires at least one touching and at least one un-touching of a touch sensitive surface on the display. However, Lehtinen teaches a portable communication device including a touch sensitive screen (6, figure 2) for entering and displaying data so that key activation requires at least one touching and at least one un-touching of a touch sensitive surface on the touch sensitive screen in order to make it user friendly. . . .

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Kitamura in presenting each key as a soft key on the display device in accordance with the program executed on the device processor, as per teaching of Lehtinen, because it makes user friendly so that data is entered via the touch sensitive screen."

As previously argued, Kitamura's letter/key arrangement is not based on letter frequencies. Because Lehtinen does not remedy the deficiencies of Kitamura, the claims of the present invention are not rendered obvious by the combination of references.

**IV. Claims 7-8 are patentable under 35 U.S.C. 103(a) over Kitamura in view of Danish**

Again, Kitamura does not disclose an key arrangement based on letter frequency. Because Danish does not remedy the deficiencies of Kitamura, the claims of the present invention are not rendered obvious by the combination of references.

**V. Claim 9 is patentable under 35 U.S.C. 103(a) over Kitamura in view of Terracina.**

Once again, Kitamura does not disclose an key arrangement based on letter frequency. Because Terracina does not remedy the deficiencies of Kitamura, the claims of the present invention are not rendered obvious by the combination of references.

**VII. Claim 15 is patentable under 35 U.S.C. 103(a) over Kitamura in view of Grover.**

Kitamura does not disclose an key arrangement based on letter frequency. As Grover does not remedy the deficiencies of Kitamura, the claims of the present invention are not rendered obvious by the combination of references.

**VI. Claims 22-24 are patentable under 35 U.S.C. 103(a) over Grover.**

Claims 22-24 stand rejected under 35 USC 103(a) as being obvious over US Grover. As clearly described in the specification, the particular and specific assignments of keys in claim 22 (reproduced above) are based on the occurrence frequency of letters of alphabet. There is no teaching or suggestion in Grover et al. to arrange keys on a keypad according to specific key assignment set forth in claim 22.

Grover et al. discloses a method of disambiguating ambiguous key entry, with each key having several characters possible, by means of a dictionary lookup. Therefore, the outcome of pressing a single key in Grover is ambiguous and cannot generate a specific character signal. Figure 3 of Grover depicts 9 keys assigned numbers 1 -9, where the key assignment for the keys are totally different than the key assignments required by claim 22. The Final Office Action concedes that the key assignment of Grover et al. is different from the claimed invention, but it states that "it is old and well known in the art for rearranging keys assignments depending on user's need." The fact that keypads can be arranged based on a user need does not teach, suggest or lead to the conclusion to arrange them in the specific manner claimed by claim 22. A user need for data entry in a keypad may be based on various parameters. At one end, the keypad entry may be based on a user's physical ability, and at another end it may be based on a user's mental or cognitive abilities. By way of analogy, these parameters could be as varied as shades in the color spectrum. In fact, at some extremes, the parameters may be opposite each other, like black and white, which would not lead one of ordinary skill in the art to find a specific key assignment obvious, without a teaching or suggestion. The fact that Grover teaches "REDUCED KEYBOARD DISAMBIGUATES" does not lead one of ordinary skill in the art to assign keys to a keypad according to specific requirements of claim 22. Moreover. Noting in Grover teaches or suggests one of ordinary skill in the art

to base the key assignments on frequency of occurrence of alphabetical characters. Even then, such person would have to rely on one of a numerous number of available frequency tables for the key assignments, which may result in an assignment that is different than the specific requirement of claim 22.

For the reasons stated above, Grover is clearly distinguishable from the broadest rejected independent claim 22, because it does not teach or suggest the claimed limitations. Therefore, it is respectfully submitted that all other dependent claims, which incorporate intervening claim limitations, are distinguishable in view of Grover, alone or in combination with other references has also been overcome.

**VII. Claim 27 is patentable under 35 U.S.C. 103(a) over Terracina in view of Lehtinen.**

As previously argued, Terracina is distinguishable from the present invention in that the Terracina keyboard is combination and does not work if a sequence of keys are used. In contrast, the present invention, requires the use of a sequence of keys. This requirement is specifically cited in claim 25, from which claim 27 depends. As Lehtinen cannot remedy the deficiency of Terracina, claim 27 is patentable over both references.

### CONCLUSION

For the foregoing reasons it is respectfully submitted that claims 1-28 are patentable over the cited references. Accordingly, the Examiner's rejection of these claims should be reversed.

The \$165.00 fee as set forth in 37 C.F.R. §1.17(b) is submitted herewith. Should the remittance be missing or should any additional fees be required, the Commissioner may charge the appropriate amount to our Deposit Account No. 22-0261.

Date: 8/5/04

Respectfully submitted,

  
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## APPENDIX

1. (Currently amended): A keypad for entering letters, comprising:
  - An array of keys with each key being assigned to at least one letter of an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work, wherein the alphabetical system comprises at least one most-frequencyfrequently-occurring letter that is entered by more than one key activation associated with the same key and at least one less-frequently-occurring letter that is entered by at least one key activation associated with each of at least two different keys.
2. (Currently amended): The key-pad of claim 1, wherein each key is a soft-keys-presented to a user on a display device in ~~accordance~~accordance with a program executed on a device processor.
3. (Original): The keypad of claim 1, wherein the more than one key activation at the same key requires at least one touching and at least one un-touching of a touch-sensitive surface at substantially the same location, and wherein the at least one key activation at each of at least two different keys requires touching the touch-sensitive surface at a first location and un-touching the touch sensitive surface at a second location that is different from the first location.
4. (Original): The keypad of claim 1, wherein one or more letters are assigned to each key in accordance with a position array having defined position elements.
5. (Original): The keypad of claim 4, wherein the position elements include a central position and at least one peripheral position that point to an adjacent key.
6. (Original): The keypad of claim 5, wherein a most-frequently-occurring letter is assigned to the central position and a less-frequently-occurring letter is assigned to the peripheral position.

7. (Original): The keypad of claim 6, wherein a less-frequently-occurring letter is assigned to the central position and a less-frequently-occurring letter is assigned to the peripheral position.

8. (Original): The keypad of claim 7, wherein one or more non-letter symbols or characters are assigned to each key in accordance with position elements of the position array, wherein a non-letter symbol or character is entered by a two-key sequence that requires first activating the key assigned to a non-letter symbol or character and then activating the key to which the position element of the non-letter symbol or character points to.

9. (Original): The keypad of claim 1, wherein a wrap-around extension points to a non-adjacent key, if a peripheral position points to no adjacent key.

10. (Original): The keypad of claim 1, wherein a key activation includes touching a substantially the same or different locations of a surface or un-touching of substantially the same or different locations of the surface.

11. (Previously Amended): A keypad system comprising:

- (a) an array of keys with each key being assigned to at least one letter in an alphabetical system based on the frequency of occurrence of the least one letter in a typical body of written work;
- (b) a detector that detects activation at a key; and
- (c) a signal generator that generates a character signal corresponding to a selected letter in accordance with a key sequence, wherein for a most-frequently-occurring letter, the key sequence requires two key activations at the same key, and for a less-frequently-occurring letter the key sequence requires key activation at two different keys.

12. (Original): The keypad system of claim 11, wherein most-frequently-occurring letters are assigned, at most, to each one of all the keys within the key array,



and less-frequently-occurring letters are assigned in accordance with at least one element of a position array.

13. (Original): The keypad of claim 12, wherein at least one least-frequently-occurring letter is assigned in accordance with at least one element of a position array.

14. (Original): The keypad system of claim 13, wherein the array of keys comprises M rows and N columns and the number of letters in the alphabetical system is equal to L.

15. (Original): The keypad system of claim 14, wherein  $M=N=3$  and  $L=26$ .

16. (Original): The keypad system of claim 14, wherein  $M=4$  and  $N=3$ , and wherein one of the keys that is not assigned to a letter is used for selecting an alphanumeric operating mode of the keypad system.

17. (Original): The keypad of claim 11, wherein each key is a soft-key presented to a user on a display device in accordance with a program executed on a device processor.

18. (Original): The keypad system of claim 11, wherein a key activation includes touching of substantially the same or different locations of a surface or un-touching of substantially the same or different locations of the surface.

19. (Currently Amended): An information entry method for a keypad, comprising:

(a) determining the frequency of occurrences of letters in a typical body of written work that is based on an alphabetical system;

(b) assigning letters to an array of keys based on the frequency of occurrence of the letter;

(c) activating at least one of the keys in accordance with a key sequence that corresponds to a selected letter, wherein for a most-frequently-occurring letter, the key sequence requires multiple activation of the same key, and for a less-frequently-occurring letter the key sequence requires activation of two different keys; and

(d) generating a character signal corresponding to the selected letter in response to the key sequence.

20. (Original): The method of claim 19, wherein a key activation includes touching of substantially the same or different locations of a surface or un-touching of substantially the same or different locations of the surface.

21. (Previously Amended): The method of claim 19, wherein each key is a soft-key presented to a user on a display device in accordance with a program executed on a device processor.

22. (Original): A keypad for entering English letters, comprising:

(a) an array of nine keys numbered key 1 through key 9, wherein

key 1 is assigned to letter A;  
key 2 is assigned to letter N;  
key 3 is assigned to letter I;  
key 4 is assigned to letter H;  
key 5 is assigned to letter O;  
key 6 is assigned to letter R;  
key 7 is assigned to letter T;  
key 8 is assigned to letter E; and  
key 9 is assigned to letter S.

23. (Previously Amended): The keypad of claim 22, wherein letters V, L, X, K, M, Y, W, and F are further assigned to keys 1, 2, 3, 6, 7, 8, 9, respectively.

24. (Previously Amended): The keypad of claim 22, wherein letters Q, U, P, C, B, G, D, and J are further assigned to key 5.

25. (Previously Amended): A keypad for entering data symbols, comprising:  
an array of keys having at least one key assigned to a data symbol in accordance with a position array that has defined position elements, including at least one peripheral position that point to a non-adjacent key, wherein at least one data symbol is entered by key activation sequence of a key and a non-adjacent key that is pointed to by a peripheral position of the key.

26. (Original): The keypad of claim 25, wherein the non-adjacent key is a key that is specified by a wrap-around position of the array of keys.

27. (Previously Amended): The method of claim 25, wherein each key is a soft-key presented to a user on a display device in accordance with a program executed on a device processor.

28. (Original): The method of claim 25, wherein a key activation includes touching of substantially the same or different locations of a surface or un-touching of substantially the same or different locations of the surface.